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INITIAL gj DATE 8/23/93

U.S. Department of Energy

ARGONNE NATIONAL LABORATORY

ARGONNE-WEST *P.O. Box 2528, Idaho Falls, Idaho 83403-2528 Telephone 208/533-7399*

WAG 9

SITE CODE:
ANL-01A**

Main Cooling Tower Blowdown Ditch

Photo 2A: Main Cooling Tower Blowdown Ditch (present)

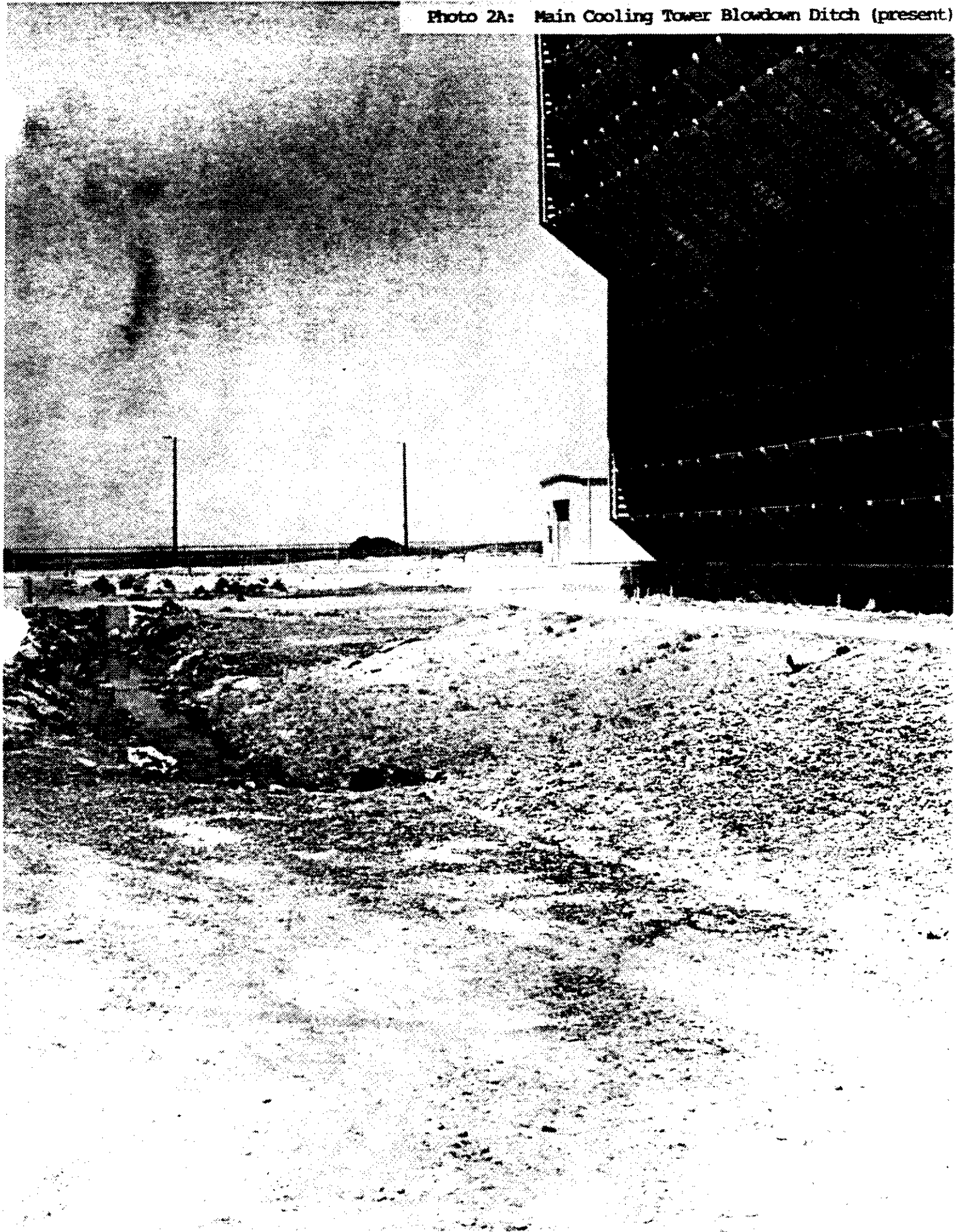


Photo 2B: Main Cooling Tower Blowdown Ditch (present)

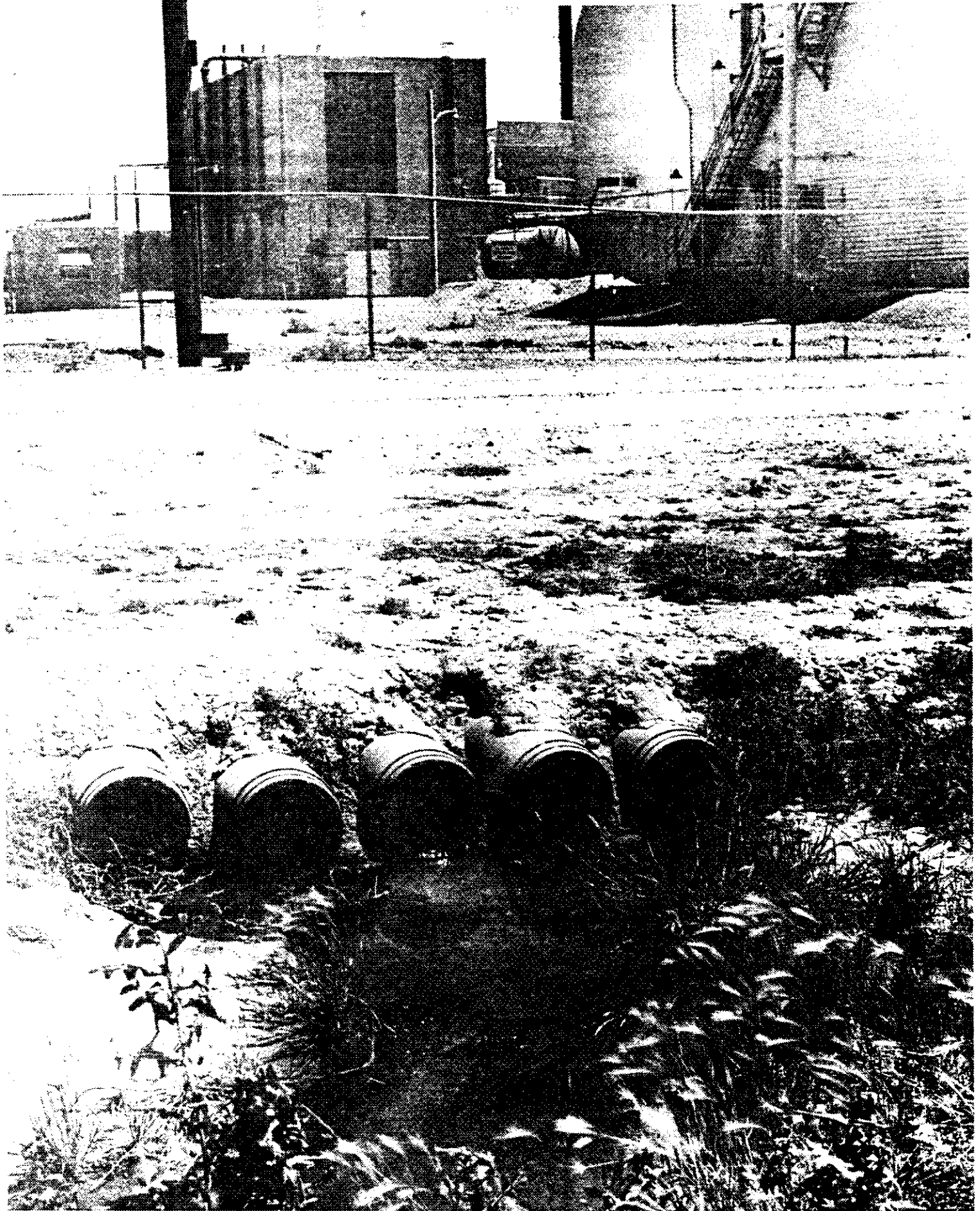


Photo 2C: Main Cooling Tower Blowdown Ditch (present)



INITIAL ASSESSMENT FORM

I. SITE NAME AND LOCATION

01 SITE NAME Main Cooling Tower Blowdown Ditch			02 ADDRESS Idaho National Engineering Laboratory (INEL)	
03 CITY Scoville	04 STATE Idaho	05 ZIP CODE 83403	06 COUNTY Bingham	
09 COORDINATES: NORTH <u>703,260</u>		EAST <u>369,980</u>		07 COUNTY CODE 2
				08 CONG. DIST. 2nd

10 DIRECTIONS TO SITE (Starting from nearest public road) West of Idaho Falls, Idaho on U.S. Highway 20 for 30 miles (48 km) then 4 miles (6 km) north on Taylor Blvd.

II. OWNER/OPERATOR

01 OWNER (If known) Department of Energy (DOE)		02 STREET ADDRESS 785 DOE Place		
03 CITY Idaho Falls	04 STATE Idaho	05 ZIP CODE 83402	06 TELEPHONE NUMBER (208) 526-1122	
07 OPERATOR (If known) Argonne National Laboratory		08 STREET ADDRESS Taylor Blvd.		
09 CITY Scoville	10 STATE Id.	11 ZIP CODE 83403	12 TELEPHONE NUMBER 208-526-7625	

III. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO DATE <u>7 / 14 / 88</u>		
02 SITE STATUS (Check one) <input checked="" type="checkbox"/> A. Active SWMU <input type="checkbox"/> B. Inactive <input type="checkbox"/> C. Unknown		03 YEARS RECEIVED HAZ.WAST 1978 / 1986 Start Stop Unknown
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED See Waste Information Section		
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION See Hazardous Conditions and Incidents Section		

IV. INFORMATION AVAILABLE FROM

01 CONTACT F. Hunter Weiler	02 OF (Agency/Org.) DOE-ID	03 TELEPHONE NUMBER (208) 526-0601	
04 PERSON RESPONSIBLE FOR ASSESSMENT L. C. Witbeck	05 AGENCY ANL-W	06 ORG. Safety, Security & Safeguards	07 TELEPHONE NUMBER 208-526-7537
08 DATE <u>1 / 26 / 89</u> Mon Day Year			

WASTE INFORMATION

I. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

<u>X</u> A. Solid	<u> </u> E. Slurry
<u> </u> B. Powder Fines	<u>X</u> F. Liquid
<u>X</u> C. Sludge	<u> </u> G. Gas
<u> </u> D. Other	

02 WASTE QUANTITY AT SITE

TONS **0.02**

CUBIC YARDS

NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

<input checked="" type="checkbox"/> A. Toxic	<input checked="" type="checkbox"/> D. Persistent	<input type="checkbox"/> G. Flammable	<input type="checkbox"/> J. Explosive
<input type="checkbox"/> B. Corrosive	<input type="checkbox"/> E. Soluble	<input type="checkbox"/> H. Ignitable	<input type="checkbox"/> K. Reactive
<input type="checkbox"/> C. Radioactive	<input type="checkbox"/> F. Infectious	<input type="checkbox"/> I. Highly Volatile	<input type="checkbox"/> L. Incompatible
			<input type="checkbox"/> M. Not Applicable

II. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT	COMMENTS
SLU	Sludge	.02	Tons	Trivalent Chromium
OLW	Oily Waste			
SOL	Solvents			
PSD	Pesticides			
OCC	Other organic chemicals			
IOC	Inorganic chemicals			
ACP	Acids			
BAS	Bases			
MES	Heavy metals			

III. HAZARDOUS CONSTITUENTS

[illegible]

IV. SOURCES OF INFORMATION

Use specific references, e.g., state titles, sample analysis reports, etc.
Site inspections, personnel interviews, process records, laboratory records, etc.

I. HAZARDOUS CONDITIONS AND INCIDENTS

02 — OBSERVED (Date —) — POTENTIAL:
ALLEGED

No observed release has been identified, but due to approximately 96% of industrial waste water discharged to the pond being recharged to the aquifer there is a potential for groundwater contamination.

02 — OBSERVED (Date —) — POTENTIAL:
— ALLEGED

Not applicable

02	OBSERVED (Date _____)	POTENTIAL
04	NARRATIVE DESCRIPTION	ALLEGED

<u>04</u>	<u>NARRATIVE DESCRIPTION</u>	<u>ALLEGED</u>

At present, there is no airborne hazard. If the ditch dries up there would be a chance for airborne dust contamination.

02	OBSERVED (Date _____)	POTENTIAL
04	NARRATIVE DESCRIPTION	ALLEGED

<u>04</u>	<u>NARRATIVE DESCRIPTION</u>	<u>ALLEGED</u>

Not applicable

02	OBSERVED (Date _____)	POTENTIAL
04	NARRATIVE DESCRIPTION	ALLEGED

<u>04</u>	<u>NARRATIVE DESCRIPTION</u>	<u>ALLEGED</u>

Not applicable

02 — OBSERVED (Date —) — POTENTIAL
— ALLEGED

Sediment samples, in the ditch, have identified hazardous constituents.
See previous page.

02 __ OBSERVED (Date __) __ POTENTIAL
ALLEGED

Not applicable

HAZARDOUS CONDITIONS AND INCIDENTS

I. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 J. DAMAGE TO FLORA 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: ALLEGED
 Not applicable

01 K. DAMAGE TO FAUNA 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: (include name(s) of species) ALLEGED
 The potential exists for small birds, rabbits, ducks and predatory animals to pick up contamination by drinking from the ditch, however, the contamination appears to be confined to the sediment in the bottom, minimizing the risk.

01 L. CONTAMINATION OF FOOD CHAIN 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: ALLEGED
 There is a potential for predatory animals to pick up contamination through feedings on rodents, rabbits, etc., which have access to the pond.

01 M. UNSTABLE CONTAINMENT OF WASTES 02 OBSERVED (Date) POTENTIAL
 (SPILL RUNOFF, STANDING LIQUIDS/LEAKING DRUMS)
 03 NARRATIVE DESCRIPTION: ALLEGED
 Not applicable

01 N. DAMAGE TO OFFSITE PROPERTY 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: ALLEGED
 Not applicable

01 O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: ALLEGED
 Not applicable

01 P. ILLEGAL/UNAUTHORIZED DUMPING 02 OBSERVED (Date) POTENTIAL
 04 NARRATIVE DESCRIPTION: ALLEGED
 See attachment (next page)

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL OR ALLEGED HAZARDS
 None

III. COMMENTS None

IV. SOURCES OF INFORMATION (List specific references, e.g., state titles, sample analysis, reports) ANL-W
 Site inspections, personnel interview, disposal quantity records,
 Installation Assessment Report, USGS Report IDO-22053 TID-4500 The Influence of Liquid Waste Disposal on the Geochemistry of Water at the NRTS, sediment sample analyses.

ATTACHMENT

Part 3 - Description of hazardous conditions and incidents

II P 04. Narrative Description

From 1964 to March 1986, sulfuric acid and sodium hydroxide used for ion exchange column regeneration were not completely neutralizing within the industrial waste system, prior to discharging in the industrial waste ditches. The main cooling tower blowdown ditch began receiving regeneration discharges in 1978. The fact that the ditch was receiving corrosive liquids was discovered in 1986 and corrected, but until the correction occurred the ditch was in violation of RCRA since November, 1980.

PRIORITY RANKING SYSTEM

I. GENERAL FACILITY INFORMATION

FACILITY NAME: Main Cooling Tower Blowdown Ditch

LOCATION: Idaho National Engineering Laboratory

POINT OF CONTACT: NAME: Argonne National Laboratory-West

ADDRESS: Scoville, Idaho 83403

PHONE: 526-7625

REVIEWER: Michael J. Holzemer

DATE: ~~2/20/86~~ 1/26/89

II. GENERAL FACILITY DESCRIPTION

GENERAL DESCRIPTION OF THE FACILITY: (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

This unit was designed to receive industrial type waste water. The primary contamination route of concern is groundwater. Hazardous substances identified in the unit are listed under Waste Information - Section III.

III. SCORES -

SM = 11.6 (Sgw= 20.0 Ssw= 0 Sa= 0)

SFE = 0

SDC = 0

GROUND WATER ROUTE WORKSHEET

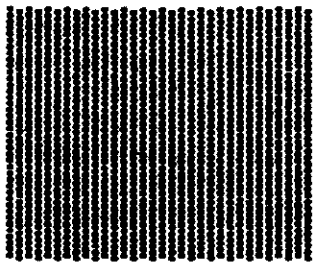
RATING FACTOR	ASSIGNED VALUE (Circle one)	MULTI- PLIER	SCORE Ø	MAX. SCORE	REF. Section
3.2					
1.ROUTE CHARACTERISTICS					
Depth to Aquifer of Concern	Ø 1 2 3	2	Ø	6	
Net Precipitation	Ø 1 2 3	1	Ø	3	
Permeability of the Unsaturated Zone	0 1 2 3	1	3	3	
Physical State	0 1 2 3	1	3	3	
Total Route Characteristics Score			6	15	
2.CONTAINMENT					
	0 1 2 3	1	3	3	3.3
3.WASTE CHARACTERISTICS					
Toxicity/Persistence	0 3 6 9 12 15 18	1	12	18	3.4
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			13	26	
4. Multiply lines 1 x 2 x 3			234	1170	
5. Divide line 4 by 1170 and multiply by 100 Sgw= 20.0					

SURFACE WATER ROUTE WORKSHEET

RATING FACTOR	ASSIGNED VALUE (Circle one)	MULTI- PLIER	SCORE Ø	MAX. SCORE	REF. Sectio
4.1					
1.ROUTE CHARACTERISTICS					
Facility Slope and Intervening Terrain	Ø 1 2 3	1	Ø	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	1	3	
Distance to Nearest Surface Water	Ø 1 2 3	2	Ø	6	
Physical State	0 1 2 3	1	3	3	
Total Route Characteristics Score			4	15	
4.2					
2.CONTAINMENT					
	Ø 1 2 3	1	Ø	3	4.3
4.4					
3.WASTE CHARACTERISTICS					
Toxicity/Persistence	0 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score			13	26	
4.5					
4. Multiply lines 1 x 2 x 3			Ø	1170	
4.6					
5. Divide line 4 by 1170 and multiply by 100			Ssw=	Ø	

AIR ROUTE WORKSHEET

RATING FACTOR	ASSIGNED VALUE (Circle one)	MULTI- PLIER	SCORE	MAX. SCORE	REF. Section
1. HISTORIC RELEASE	① 45	1	Ø	45	5.1
Date and Location: See attached supplement pages					
If line 1 is 0, the Sa = 0. Enter on line 5.					
If line 1 is 45, then proceed to line 2.					
2. WASTE CHARACTERISTICS					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3. TARGETS					5.3
Population within 4-mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
Total Target Scores				39	
4. Multiply lines 1 x 2 x 3			Ø	35100	
5. Divide line 4 by 35100 and multiply by 100 Sa = Ø					

	S	S^2
GROUNDWATER ROUTE SCORE (S _{gw})	20.0	400.0
SURFACE WATER ROUTE SCORE (S _{sw})	0	0
AIR ROUTE SCORE (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		400.0
$SQR(S_{gw}^2 + S_{sw}^2 + S_a^2)$		20.0
$SQR(S_{gw}^2 + S_{sw}^2 + S_a^2)/1.73 = SM$		11.6

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: As briefly as possible, summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: Main Cooling Tower Blowdown Ditch

LOCATION: Argonne National Laboratory-West/Idaho National Engineering Laboratory

DATE SCORED: 1/26/89

PERSON SCORING: Michael J. Holzemer

PRIMARY SOURCE(S) OF INFORMATION:

1. 40 CFR 300
2. Industrial water use at ANL-W, Ralph Pohto, March, 1980
3. Personnel interviews (site engineers, chemists, Plant Services personnel)
4. Facility waste descriptions, ANL-West, December 14, 1973, (draft)
5. Appendix VIII analyses on sediment samples in "estuary".

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

COMMENTS OR QUALIFICATIONS:

GROUNDWATER ROUTE

1. OBSERVED RELEASE - Undertake Corrective Action

Contaminants detected (3 maximum):

No observed release

Rationale for attributing the contaminants to the facility:

Not applicable

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Snake River Plain Aquifer

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

640 feet

Depth from the ground surface to the lowest point of waste disposal/
storage:

4 Feet

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

9.07 inches

Mean annual lake or seasonal evaporation (list months for seasonal):

36 inches

Net precipitation (subtract the above figures):

- 26.93 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

An interbedded sequence of basaltic lava flows and
sedimentary deposits.

Permeability associated with soil type:

10^{-7} to 10^{-3} cm/sec

Physical State

Physical state of substances at time of disposal (or at present time for
generated gases):

Liquid (blowdown discharges)

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Surface Impoundment

Method of highest score:

Surface Impoundment

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Trivalent Chromium	Cadmium
Sulfuric Acid	Antimony
Sodium Hydroxide	Nickel
Lead	Arsenic
Silver	Barium

Compound with highest score: Trivalent Chromium, the toxicity rating of 1 was used because upon sampling the Industrial Waste Pond a reducing environment was determined to exist and no hexavalent chromium was found. Since the "estuary" is at the inlet to the pond it was assumed the same condition exists as found in the pond. The other metals were evaluated based on the pond environment tending to produce sulfide compounds having lower toxicity ratings of 1 or less.

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Chromium	-	2 kg	Barium	-	20 kg
Silver	-	0.2 kg	Nickel	-	2 kg
Lead	-	2 kg	Sulfuric Acid	-	41,556 liters
Antimony	-	0.6 kg	Sodium Hydroxide	-	15,584 liters
Arsenic	-	0.6 kg	Cadmium	-	0.3 kg

Basis of estimating and/or computing waste quantity:

All constituents, except the acid and base, were determined from sample results of the "estuary", which is the lowest point in the ditch. The ditch is approximately 500 ft. in length, with a width from 5-15 ft. The wt/vol of the sediment is 1.22 gm/cm³. The depth of soil, to rock, average 2 ft. The total sulfuric acid and sodium hydroxide were based on the use of 200 gal/month & 150 gal/month respectively. These were determined from chemistry usage reports. The wastes reported were from estimations (very rough) provided by EBR-II chemistry that 30% of the sulfuric acid or 15% of sodium hydroxide did not neutralize before discharge. (Corrosive liquids were not used in total quantity because of the neutralization in the ditch)

Checklist for Groundwater Releases

	<u>Yes</u>	<u>No</u>
<u>Identifying Release</u>		
1. <u>Potential for Groundwater Releases from the Unit</u>		
o Unit type and design		
- Does the unit type (e.g., land-based) indicate the potential for release?	<u>X</u>	<u> </u>
- Does the unit have engineered structures (e.g., liners, leachate collection systems, proper construction materials) designed to prevent releases to groundwater?	<u> </u>	<u>X</u>
o Unit operation		
- Does the unit's age (e.g., old unit) or operating status (e.g., inactive, active) indicate the potential for release?	<u>X</u>	<u> </u>
- Does the unit have poor operating procedures that increase the potential for release?	<u> </u>	<u>X</u>
- Does the unit have compliance problems that indicate the potential for a release to groundwater?	<u> </u>	<u>X</u>
o Physical condition		
- Does the unit's physical condition indicate the potential for release (e.g., lack of structural integrity, deteriorating liners, etc.)?	<u> </u>	<u>X</u>
o Locational characteristics		
- Is the unit located on permeable soil so the release could migrate through the unsaturated soil zone?	<u>X</u>	<u> </u>
- Is the unit located in an arid area where the soil is less saturated and therefore a release has less potential for downward migration?	<u> </u>	<u>X</u>
- Does the depth from the unit to the uppermost aquifer indicate the potential for release?	<u> </u>	<u>X</u>

Checklist for Groundwater Releases

	<u>Yes</u>	<u>No</u>
- Does the rate of groundwater flow greatly inhibit the migration of a release from the facility?	—	<u>X</u>
- Is the facility located in an area that recharges surface water?	—	<u>X</u>
o Waste characteristics		
- Does the waste in the unit exhibit high or moderate characteristics of mobility (e.g., tendency not to sorb soil particles or organic matter in the unsaturated zone)?	—	<u>X</u>
- Does the waste exhibit high or moderate levels of toxicity?	<u>X</u>	—
2. <u>Evidence of Groundwater Releases</u>		—
o Existing groundwater monitoring systems		
- Is there an existing system?	—	<u>X</u>
- Is the system adequate?	<u>N/A</u>	<u>N/A</u>
- Are there recent analytical data that indicate a release?	—	<u>X</u>
o Other evidence of groundwater releases		
- Is there evidence of contamination around the unit (e.g., discolored soils, lack of or stressed vegetation) that indicates the potential for a release to groundwater?	—	<u>X</u>
- Does local well water or spring water sampling data indicate a release from the unit?	—	<u>X</u>

Determining the Relative Effect of the Release on Human Health and the Environment

1. Exposure Potential

o Conditions that indicate potential exposure		
- Are there drinking water well(s) located near the unit?	<u>X</u>	—
- Does the direction of groundwater flow indicate the potential for hazardous constituents to migrate to drinking water wells?	—	<u>X</u>

SURFACE WATER ROUTE

1. OBSERVED RELEASE - Undertake Corrective Action

Contaminants detected in surface water at the facility or downhill from it (3 maximum):

No observed release

Rationale for attributing the contaminants to the facility:

Not Applicable

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Less than 3 percent

Name/description of nearest downslope surface water:

Big Lost River

Average slope of terrain between facility and above cited surface water body in percent:

Less than 3 percent

Is the facility located either totally or partially in surface water?

No

Is the facility completely surrounded by areas of high elevation?

Yes

1-year 24-Hour Rainfall in Inches

less than 2 inches

Distance to Nearest Downslope Surface Water

12 Miles

Physical State of Waste

Waste contained in the sludge within the ditch.

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

None, intervening terrain precludes runoff from entering surface water

Method with highest score:

Assigned containment value of 0 per 40 CFR 300, App. A, Table 9

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Trivalent Chromium

Sulfuric Acid

Sodium Hydroxide

Lead

Silver

Cadmium

Antimony

Nickel

Barium

Arsenic

Compound with highest score:

See explanation in Ground Water Route section for waste characteristics

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

None

Basis of estimating and/or computing waste quantity:

Containment score of zero

Checklist for Surface Water/Surface Drainage Releases

Yes

No

Identifying Releases

1. Potential for Surface Water/Surface Drainage Release from the Facility

o Proximity to Surface Water and/or to Off-site Receptors

- Could surface run-off from the unit reach the nearest downgradient surface water body? X

- Could surface run-off from the unit reach off-site receptors (e.g., if facility is located adjacent to populated areas and no barrier exists to prevent overland surface run-off migration)? X

o Release Migration Potential

- Does the slope of the facility and intervening terrain indicate potential for release? X

- Is the intervening terrain characterized by soils and vegetation that allow overland migration (e.g., clayey soils, and sparse vegetation)? X

- Does data on one-year 24-hour rainfall indicate the potential for area storms to cause surface water or surface drainage contamination as a result of run-off? X

o Unit Design and Physical Condition

- Are engineered features (e.g., run-off control systems) designed to prevent release from the unit? X

- Does the operational history of the unit indicate that a release has taken place (e.g., old, closed or inactive unit, not inspected regularly, improperly maintained)? X

- Does the physical condition of the unit indicate that releases may have occurred (e.g., cracks or stress fractures in tanks or erosion of earthen dikes or surface impoundments)? X

Checklist for Surface Water/Surface Drainage Releases

	<u>Yes</u>	<u>No</u>
o Waste Characteristics		
- Is the volume of discharge high relative to the size and flow rate of the surface water body?	—	<u>X</u>
- Do constituents in the discharge tend to sorb to sediments (e.g., metals)?	<u>X</u>	—
- Do constituents in the discharge tend to be transported downstream?	—	<u>X</u>
- Do waste constituents exhibit moderate or high characteristics of persistence (e.g., PCBs, dioxins, etc.)?	<u>X</u>	—
- Do waste constituents exhibit moderate or high characteristics of toxicity (e.g., metals, chlorinated pesticides, etc.)?	<u>X</u>	—
2. Evidence of Surface Water/Surface Drainage Releases		
o Are there unpermitted discharges from the facility to surface water that require an NPDES or a Section 404 permit?	—	<u>X</u>
o Is there visible evidence of uncontrolled run-off from units at the facility?	—	<u>X</u>
<u>Determining the Relative Effect of the Release on Human Health and the Environment</u>		
1. o Are there drinking water intakes nearby?	—	<u>X</u>
o Could human and/or environmental receptors come into contact with surface drainage from the facility?	<u>X</u>	—
o Are there irrigation water intakes nearby?	—	<u>X</u>
o Could a sensitive environment (e.g., critical habitat, wetlands) be affected by the discharge (if it is nearby)?	—	<u>X</u>

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected:

No observed releases, assigned S_A score of zero

Date and Location of detection of contaminants:

Not Applicable

Methods used to detect the contaminants:

Not Applicable

Rationale for attributing the contaminants to the site:

Not Applicable

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Not Applicable

Most incompatible pair of compounds:

Not Applicable

Toxicity

Most toxic compound:

Trivalent Chromium

Hazardous Waste Quantity

Total quantity of hazardous waste:

See waste characteristics under ground water route

Basis of estimating and/or computing waste quantity:

See waste characteristics under ground water route

Checklist for Air Releases

	<u>Yes</u>	<u>No</u>
<u>Identifying Releases</u>		
1. Potential for Air Releases from the Facility		
o Unit Characteristics		
- Is the unit operating and does it expose waste to the atmosphere?	—	<u>X</u>
- Does the size of the unit (e.g., depth and surface area) create a potential for air release?	<u>X</u>	—
o Does the unit contain waste that exhibits a moderate or high potential for vapor phase release?		
- Does the unit contain hazardous constituents of concern as vapor releases?	—	<u>X</u>
- Do waste constituents have a high potential for volatilization (e.g., physical form, concentrations, and constituent-specific physical and chemical parameters that contribute to volatilization)?	—	<u>X</u>
o Does the unit contain waste and exhibit site conditions that suggest a moderate or high potential for particulate release?		
- Does the unit contain hazardous constituents of concern as particulate releases?	<u>X</u>	—
- Do constituents of concern as particulate releases (e.g., smaller, inhalable particulates) have potential for release via wind erosion, reentrainment by moving vehicles, or operational activities?	—	<u>X</u>
- Are particulate releases comprised of small particles that tend to travel off-site?	—	<u>X</u>
o Do certain environmental and geographic factors affect the concentrations of airborne contaminants?		
- Do atmospheric/geographic conditions limit constituent dispersion (e.g., areas with atmospheric conditions that result in inversions)?	<u>X</u>	—
- Is the facility located in a hot, dry area?	—	<u>X</u>

Checklist for Air Releases

	<u>Yes</u>	<u>No</u>
2. Evidence of Air Releases		
o Does on-site monitoring data show that releases have occurred or are occurring (e.g., OSHA data)?	___	<u>X</u>
o Have particulate emissions been observed at the site?	___	<u>X</u>
o Have there been citizen complaints concerning odors or observed particulate emissions from the site?	___	<u>X</u>

Determining the Relative Effect of the Release on Human Health and the Environment

1. Exposure Potential

o Is a populated area located near the site?	<u>X</u>	___
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Checklist for Subsurface Gas Releases

	<u>Yes</u>	<u>No</u>
<u>Identifying a Release</u>		
1. Potential for Subsurface Gas Releases		
o Does the unit contain waste that generates methane or generates volatile constituents that may be carried by methane (e.g., decomposable refuse/volatile organic wastes)?	—	<u>X</u>
o Is the unit an active or closed landfill or a unit closed as a landfill (e.g., surface impoundments and waste piles)?	—	
2. Migration of Subsurface Gas to On-site or Off-site Buildings		
o Are on-site or off-site buildings close to the unit?	<u>X</u>	—
o Do natural or engineered barriers prevent gas migration from the unit to on-site or off-site buildings (e.g., low soil permeability and porosity hydrogeologic barriers/liners, slurry walls, gas control systems)?	—	<u>X</u>
o Do natural site characteristics or man-made structures (e.g., underground power transmission lines, sewer pipes/sand and gravel lenses) facilitate gas migration from the unit to buildings?	—	<u>X</u>
<u>Determining the Relative Effect of the Release on Human Health and the Environment</u>		
1. Exposure Potential		
o Does building usage (e.g., residential, commercial) exhibit high potential for exposure?	—	<u>X</u>

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present:

No score was computed because neither a state or local fire marshal have certified that the facility presents a significant fire or explosion threat to the public or to sensitive environments.

Type of containment, if applicable:

Not Applicable

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Not Applicable

Ignitability

Compound used:

Not Applicable

Reactivity

Most reactive compound:

Not Applicable

Incompatibility

Most incompatible pair of compounds:

Not Applicable

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

See waste characteristics under ground water route

Basis of estimating and/or computing waste quantity:

See waste characteristics under ground water route

3. TARGETS

Distance to Nearest Population

Population at the ANL-West Site is 688 people. The distance from the ditch to the site is approximately 200 feet. The nearest city would be Idaho Falls, Idaho, approximately 35 miles.

Distance to Nearest Building

Distance to the nearest occupied building is 200 feet, which is the Sodium Components Maintenance Shop. Normal occupancy of this building is with a population of 5 employees during dayshift.

Distance to Sensitive Environment

Distance to wetlands:

Greater than 100 feet

Distance to critical habitat:

Greater than 1/2 mile

Land Use

Distance to commercial/industrial area, if 1 mile or less:

The INEL is a research facility. There are no commercial/industrial facilities within 1 mile.

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Greater than 2 miles

Distance to residential area, if 2 miles or less:

Greater than 2 miles

Distance to agricultural land in production within past 3 years, if 1 mile or less:

Greater than 1 mile

Distance to prime agricultural land in production within past 3 years,
if 2 miles or less:

Greater than 2 miles

If a historic or landmark site (National Register or Historic Places
and National Natural Landmarks) within the view of the site?

Big Southern Butte

Population Within 2-Mile Radius

688 employees at ANL-W

Buildings Within 2-Mile Radius

See attached plot plan

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No observed incidents

2. ACCESSIBILITY

Describe type of barrier(s):

Security guards and within a security fence

3. CONTAINMENT

Type of containment, if applicable:

Surface impoundment, less than 2 feet cover depth

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

See waste characteristics under ground water route

Compound with highest score:

See waste characteristics under ground water route

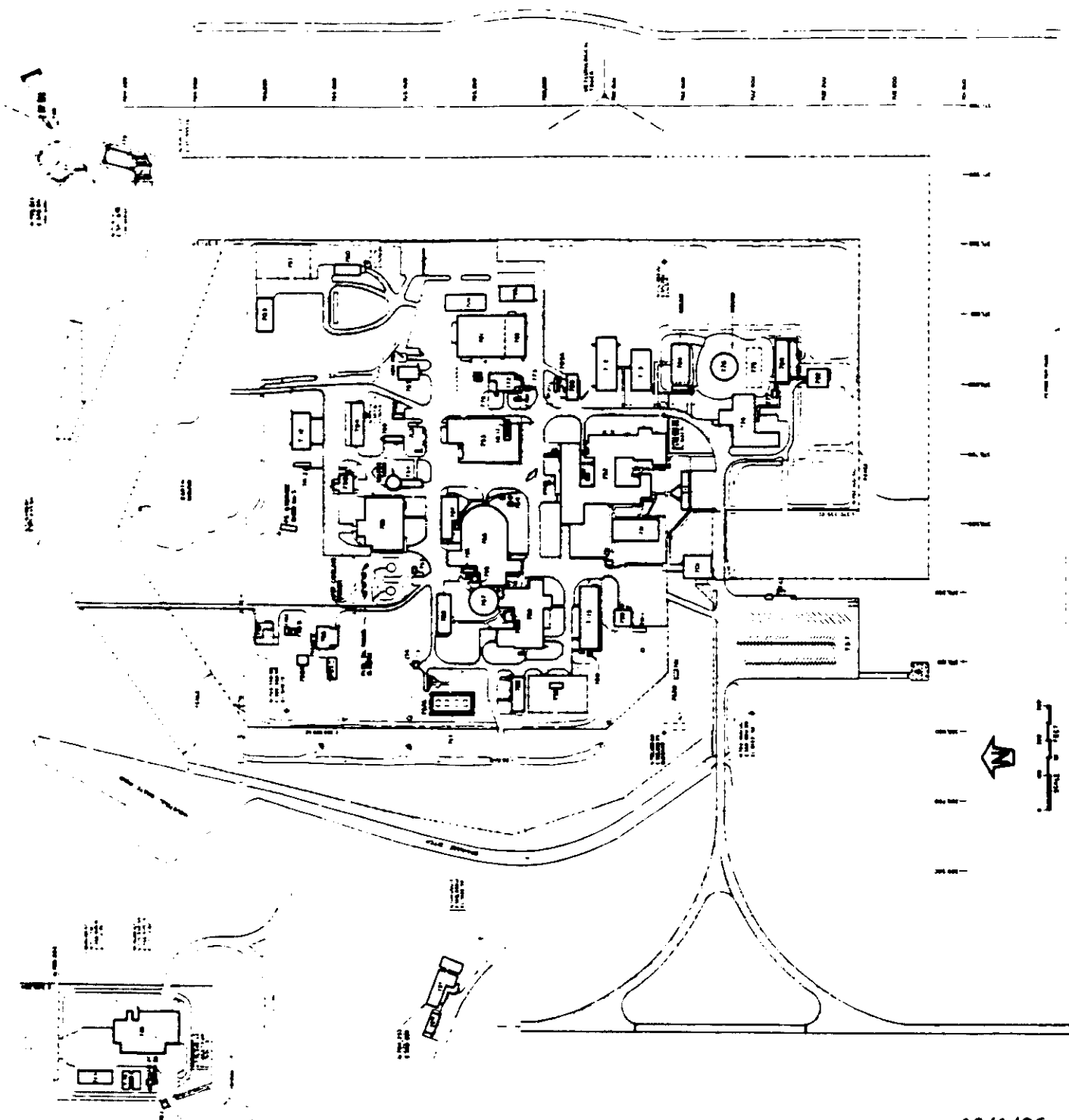
5. TARGETS

Population within one-mile radius

688 employees at ANL-W

Distance to critical habitat (of endangered species)

Greater than 1 mile



NO.	DESCRIPTION	AREA (SQ. FT.)	VOLUME (CU. YD.)
1	Building 1	10,000	100
2	Building 2	15,000	150
3	Building 3	20,000	200
4	Building 4	25,000	250
5	Building 5	30,000	300
6	Building 6	35,000	350
7	Building 7	40,000	400
8	Building 8	45,000	450
9	Building 9	50,000	500
10	Building 10	55,000	550
11	Building 11	60,000	600
12	Building 12	65,000	650
13	Building 13	70,000	700
14	Building 14	75,000	750
15	Building 15	80,000	800
16	Building 16	85,000	850
17	Building 17	90,000	900
18	Building 18	95,000	950
19	Building 19	100,000	1,000
20	Building 20	105,000	1,050
21	Building 21	110,000	1,100
22	Building 22	115,000	1,150
23	Building 23	120,000	1,200
24	Building 24	125,000	1,250
25	Building 25	130,000	1,300
26	Building 26	135,000	1,350
27	Building 27	140,000	1,400
28	Building 28	145,000	1,450
29	Building 29	150,000	1,500
30	Building 30	155,000	1,550
31	Building 31	160,000	1,600
32	Building 32	165,000	1,650
33	Building 33	170,000	1,700
34	Building 34	175,000	1,750
35	Building 35	180,000	1,800
36	Building 36	185,000	1,850
37	Building 37	190,000	1,900
38	Building 38	195,000	1,950
39	Building 39	200,000	2,000
40	Building 40	205,000	2,050
41	Building 41	210,000	2,100
42	Building 42	215,000	2,150
43	Building 43	220,000	2,200
44	Building 44	225,000	2,250
45	Building 45	230,000	2,300
46	Building 46	235,000	2,350
47	Building 47	240,000	2,400
48	Building 48	245,000	2,450
49	Building 49	250,000	2,500
50	Building 50	255,000	2,550
51	Building 51	260,000	2,600
52	Building 52	265,000	2,650
53	Building 53	270,000	2,700
54	Building 54	275,000	2,750
55	Building 55	280,000	2,800
56	Building 56	285,000	2,850
57	Building 57	290,000	2,900
58	Building 58	295,000	2,950
59	Building 59	300,000	3,000
60	Building 60	305,000	3,050
61	Building 61	310,000	3,100
62	Building 62	315,000	3,150
63	Building 63	320,000	3,200
64	Building 64	325,000	3,250
65	Building 65	330,000	3,300
66	Building 66	335,000	3,350
67	Building 67	340,000	3,400
68	Building 68	345,000	3,450
69	Building 69	350,000	3,500
70	Building 70	355,000	3,550
71	Building 71	360,000	3,600
72	Building 72	365,000	3,650
73	Building 73	370,000	3,700
74	Building 74	375,000	3,750
75	Building 75	380,000	3,800
76	Building 76	385,000	3,850
77	Building 77	390,000	3,900
78	Building 78	395,000	3,950
79	Building 79	400,000	4,000
80	Building 80	405,000	4,050
81	Building 81	410,000	4,100
82	Building 82	415,000	4,150
83	Building 83	420,000	4,200
84	Building 84	425,000	4,250
85	Building 85	430,000	4,300
86	Building 86	435,000	4,350
87	Building 87	440,000	4,400
88	Building 88	445,000	4,450
89	Building 89	450,000	4,500
90	Building 90	455,000	4,550
91	Building 91	460,000	4,600
92	Building 92	465,000	4,650
93	Building 93	470,000	4,700
94	Building 94	475,000	4,750
95	Building 95	480,000	4,800
96	Building 96	485,000	4,850
97	Building 97	490,000	4,900
98	Building 98	495,000	4,950
99	Building 99	500,000	5,000
100	Building 100	505,000	5,050